

PATENT OPERATIONS

substantially intersecting said reference axis, said reflective surface including a reflecting means for forming a reflected light having a convergence about said reference axis; and
a refractive surface connected to said reflective surface disposed intersecting said reflected light, said refractive surface including a refracting means for bringing said reflected light towards parallelism with said reference axis.

23. A lighting device including,

a light source;

a source of electrical power;

said light source further including a light emitting diode element;

said light emitting diode element coincident with a reference axis;

a connecting means for connecting said source of electrical power to said light source;

said light emitting diode element emitting a side light having a side divergence about said reference axis;

said light emitting diode element encapsulated in a lamp light transmitting medium, said lamp light transmitting medium comprising a resin having an index of refraction exceeding 1.1;

a reflective surface connected to said light source disposed intersecting said side light, said reflective surface comprising a substantially elliptical line, said substantially elliptical line having an elliptical line axis, said elliptical line axis substantially intersecting said reference axis, said reflective surface including a reflective means for forming a reflected light having a convergence about said reference axis; and

a refractive surface connected to said reflective surface disposed intersecting said reflected light, said refractive surface including a refracting means for bringing said reflected light towards parallelism with said reference axis.

24. A lighting device including:

a connecting means for connecting said source of electrical power to said light source;

said light emitting diode element coincident with a reference axis and emitting a forward light having a forward divergence about said reference axis;

said light emitting diode element encapsulated in a lamp light transmitting medium, said lamp light transmitting medium comprising a resin having an index of refraction exceeding 1.1;

a lens surface;

said lens surface formed of said lamp light transmitting medium and disposed about said light source intersecting said forward light, said lens surface including a lens means for refracting and bringing said forward light towards parallelism with said reference axis;

said light emitting diode element further emitting a side light having a side divergence about said reference axis;

said side divergence larger than said forward divergence;

a reflective surface connected to said light source disposed intersecting said side light, said reflective surface comprising a substantially elliptical line, said substantially elliptical line having an elliptical line axis, said elliptical line axis substantially intersecting said reference axis, said reflective surface including a reflective means for forming a reflected light having a convergence about said reference axis; and

a refractive surface connected to said reflective surface and disposed intersecting said reflected light, said refractive surface including a refractive means for bringing said reflected light towards parallelism with said reference axis.

26. A lighting device including:

a light source;

a source of electrical power;

said light source further including a light emitting diode element;

said light emitting diode element coincident with a refer-